Chapter 11

Operation and Maintenance

CHAPTER 11 OPERATION AND MAINTENANCE

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FIGURES

Chapter 11

Operation and Maintenance

11.1 GENERAL

A stockwater pipeline and the associated tanks and equipment can soon fall into disrepair if not properly operated and maintained. A properly constructed stockwater pipeline should last in excess of 20 years if adequate operation and maintenance are performed.

11.2 WINTERIZING

Shallow pipelines must be drained prior to freeze up. The need do drain the line in a timely manner must be emphasized to the landuser. Even small pockets of water in low areas can cause damage to the pipeline.

Where a pipeline has many small undulations it may be possible to minimize the number of drain locations required by blowing the line out with compressed air. Drains will then only be needed at major low areas. Facilities for connecting an air compressor to the line must be installed. The air compressor must have enough volume to properly blow out the line. Pressure on the pipeline must be regulated to not exceed the pressure rating of the pipe. The air should be run through the line long enough to evacuate small remaining amounts of water that will flow back into low areas after the air is removed. All of this should be specified in the operation and maintenance plan.

11.3 OPERATION AND MAINTENANCE PLAN

An operation and maintenance plan should be prepared for all stockwater pipelines and discussed with the landuser. Figure 11.1 is an Operation and Maintenance Guide, which can be used for most pipelines. When there are unique or critical factors associated with a system, a supplemental or special operation and maintenance plan should be provided.

Figure 11.1
Operation and Maintenance Guide

United States Department of Agriculture
Soil Conservation Service
Montana

OPERATION AND MAINTENANCE GUIDE FOR YOUR STOCKWATER PIPELINE AND TANKS

Operator: _____
Project: _____
Location: _____ Sec. _____, T. _____, R. _____
SCS Office _____ Phone _____

A properly operated and maintained stockwater pipeline and tank system is an asset to your operation. This system was designed and installed as a permanent solution to stockwatering deficiencies. The estimated life span of the installation is at least 20 years and can be assured and usually increased by carrying out the following recommendations. This checklist is provided for your convenience in order to help you develop a good operation and maintenance plan.

OPERATION CHECKLIST

[ ] The system was designed for a maximum of _____ (number) of _____ (livestock). If the number are increased, additional water supplies may be needed during peak use periods.

[ ] Close all hydrants and valves slowly to prevent water hammer.

[ ] Make sure all pressure tanks, pressure relief valves and pressure reducer valves are operating within design pressure limits and are properly adjusted.

Properly operating pressure gauges at appropriate locations are a valuable aid in monitoring the system.

[ ] If this is an automatic pumped system, make sure the system does not cycle on and off more than _____ times per hour. If rapid cycling is a problem, make operation adjustments or system modifications.

[ ] Drain the following sections of pipeline prior to the date shown:
Stations _____
Date _____

_____
_____
_____
_____
_____

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Figure 11.1 (cont.)
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Montana Stockwater Pipeline and Tanks

MAINTENANCE CHECKLIST

[ ] Inspect the system for sudden changes in quantity of water received from the source.

[ ] Check periodically to see if debris is restricting inflow or outflow to a tank or trough.

[ ] Check tank overflow outlets. If the outlet being damaged by livestock, or a bog is creating a problem, protect the outlet with rocks, fencing, or other protective material.

[ ] Periodically check tank or trough for leaks and cracks and repair immediately as necessary.

[ ] Periodically check all aboveground facilities for physical damage and repair as necessary.

[ ] At the beginning of the year, inspect the entire length of the pipeline for any signs of leaks or pipe damage.

[ ] Once a year, inspect the entire length of pipeline for signs of erosion and pipeline trench settlement. This is particularly important for the first two or three years after installation.

Repair eroded areas and construct water bars (diversions) or other protective measures to keep water from running down trenches or into the area around tanks.

Add backfill where pipeline trenches have settled.

[ ] Check automatic water level devices to insure that they are operating properly. Adjust or repair as necessary.

[ ] Check air valves and vents periodically to make sure they are operating properly and are not leaking.

[ ] Check the area adjacent to troughs or tanks for erosion and wear-and-tear by stock. Use gravel, scoria, concrete, compacted earth or other durable material to build the area back up.

[ ] If algae and iron sludge in tanks or troughs is a problem consider using chemicals such as chlorine, copper sulfate, or adding small fish to the tank to keep it clean.

_____
_____
_____
_____
_____
_____

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